FIG. 1

FIG. 2

Fig. 3

y

u₂(m₂, n₂)

$u_2(m_2, n_2)$

$v_2(x_2, y_2)$

$v_1(x_1, y_1)$

x

$u_1(m_1, n_1)$

y

$u_2(m_2, n_2)$

$v_2(x_2, y_2)$

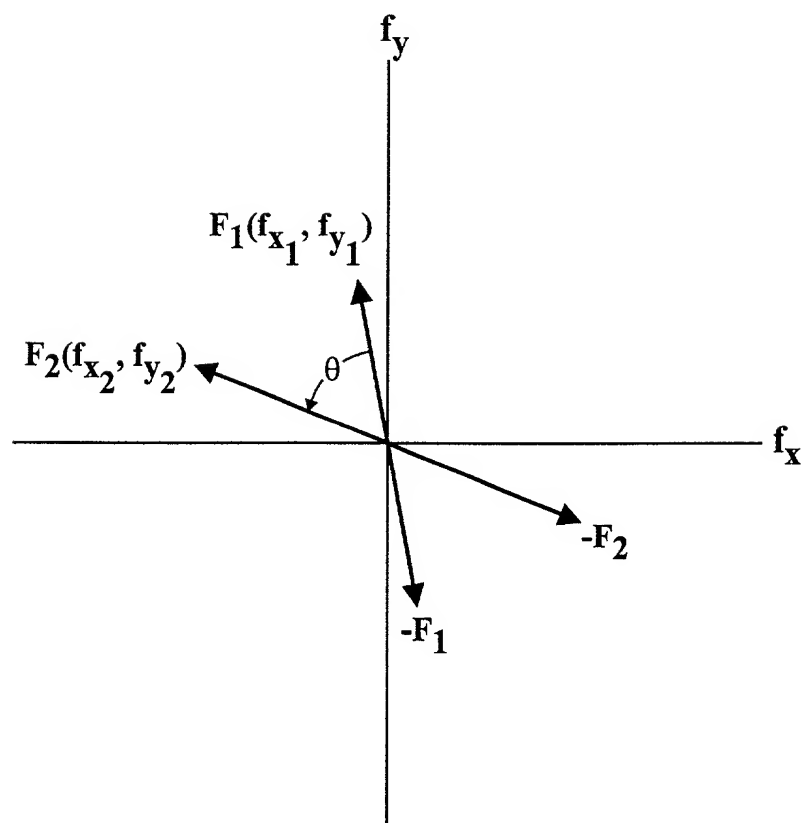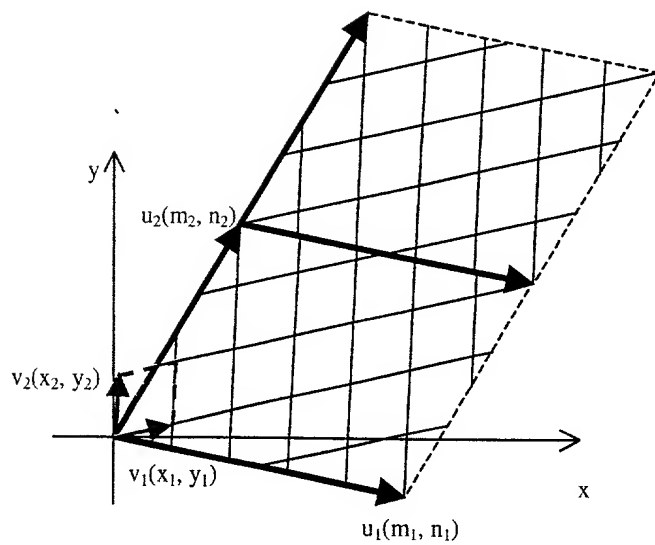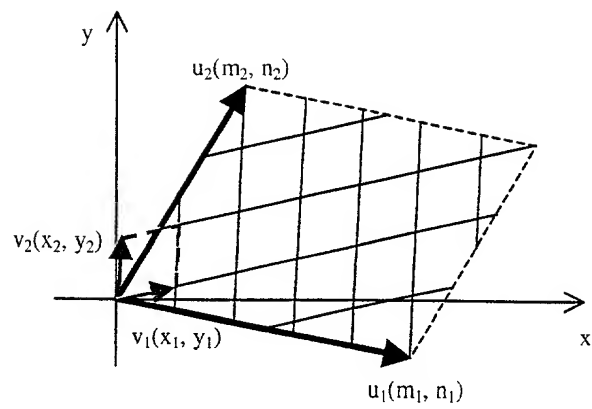$v_1(x_1, y_1)$

x

$u_1(m_1, n_1)$

Fig. 4

Figure 5

Set desired frequencies and screen angles F_1, F_2 — 100

Find subcell specification v_1, v_2 by Eqs. (4a)-(4d) — 110

Select a set of k_1, k_2, k_3, k_4
$k_1, k_2, k_3, k_4 = 0, \pm 1, \pm 2, \cdots, K$ — 120

Find real-number u_1, u_2 by
$u_1 = k_1 v_1 + k_2 v_2$,
$u_2 = k_3 v_1 + k_4 v_2$ — 130

Round off u_1, u_2 to get closest integer solution
$u_1'(m_1, n_1)$, $u_2'(m_2, n_2)$ — 140

Find approximate solution v_1', v_2' by solving
$u_1' = k_1 v_1' + k_2 v_2'$
$u_2' = k_3 v_1' + k_4 v_2'$ — 150

$v_1 - v_1'$
$v_2 - v_2'$
okay ? — 160

Yes → Save the supercell solution — 170
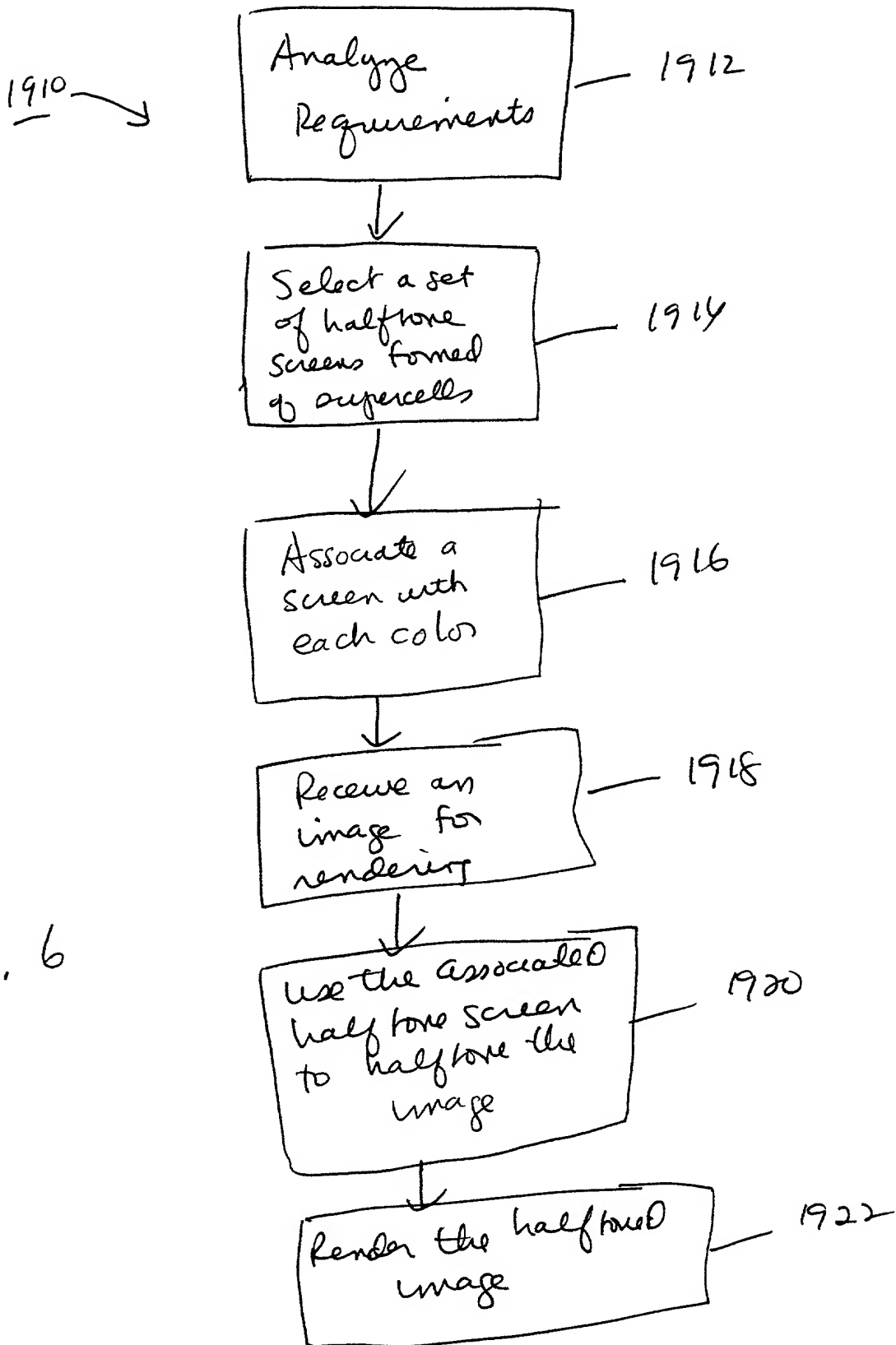
no → try another set — 180

Fig. 6

1910

Analyze Requirements — 1912

Select a set of halftone screens formed of supercells — 1914

Associate a screen with each color — 1916

Receive an image for rendering — 1918

Use the associated halftone screen to halftone the image — 1920

Render the halftone image — 1922

IMAGE PROCESSOR — 2010

IMAGE INPUT DEVICE — 2022

TEMPORARY IMAGE STORAGE — 2026

DOT AND LINE SCREEN DATA — 2014

HALFTONER — 2018

BULK DOCUMENT STORAGE — 2030

SCREEN SET SEARCHER — 2042

GENERAL IMAGE PROCESSOR — 2034

PRINT ENGINE — 2038

Fig. 7